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**HARCO PROPERTY SITE  
SAMPLING QUALITY ASSURANCE/  
QUALITY CONTROL PLAN  
WILTON, CONNECTICUT**

January 1992  
(Revised March 1992)

Prepared For:

U.S. Environmental Protection Agency  
Region I  
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Lexington, MA 02173

Prepared By:

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## **1.0 Background**

The suspected contamination at the Harco Property site is a result of the landfilling of metal hydroxide sludge. The site is located on Old Mill Road in the city of Wilton, Fairfield County, Connecticut. The nearest residents are located within 0.1 miles north of the site. The Norwalk River is located 0.25 miles due west of the site (see Figure 1 - Site Location Map).

The site is a landfill facility on 41.1 acres which had been operating for an unknown number of years and was abandoned in 1982. Metal hydroxide sludge from the Gilbert and Bennett, Inc. facility located in Georgetown, CT, was handled by this facility. The volume of metal hydroxide sludge permitted by the town of Wilton and the state of Connecticut, Water Resources Division, in 1970 for disposal was limited to 800 cubic yards, however the actual amount of material disposed at the Harco Property site may have exceeded the permit quantity, and the actual amounts are unknown. It was reported by the town of Wilton Department of Environmental Health in January 1986 (Wilton DEH, 1986) that the actual disposal exceeded the permit length of time. Additional areas and materials may have also been landfilled. The basis of this information may be found in background files maintained by the EPA On-Scene Coordinator.

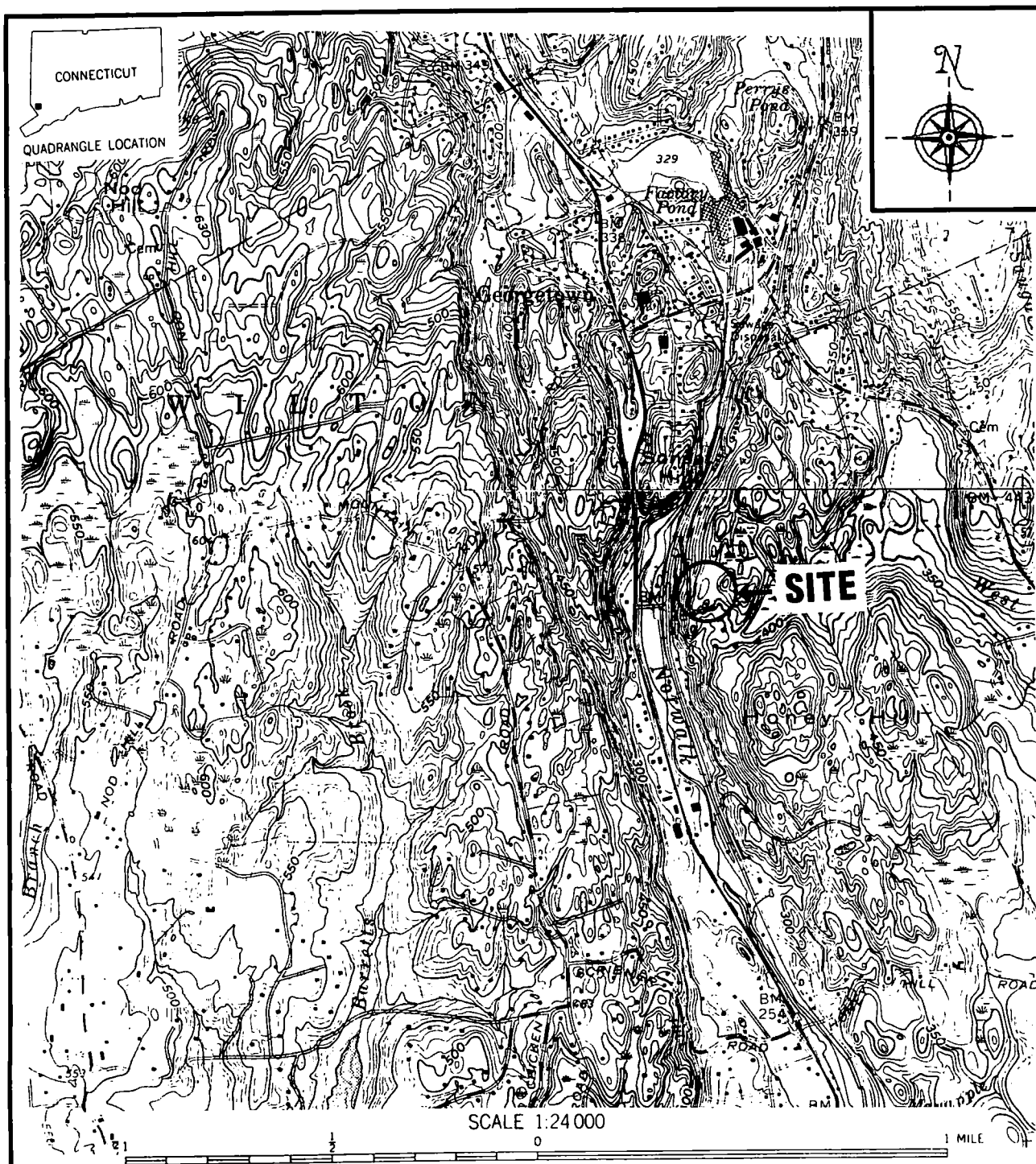
The primary contaminants of lead and zinc were identified during the EPA Removal Program Preliminary Assessment/Site Investigation (PA/SI) conducted on September 25, 1990 (Weston, 1990). Lead, a public health threat, was found at concentrations up to 84,500 parts per million (ppm) in soil. Zinc, an environmental threat, was found in a stream at concentrations up to 9 ppm. A site diagram including the sample stations and analytical results from the January 28, 1992 site visit is shown in Figure 2 (Weston, 1992).

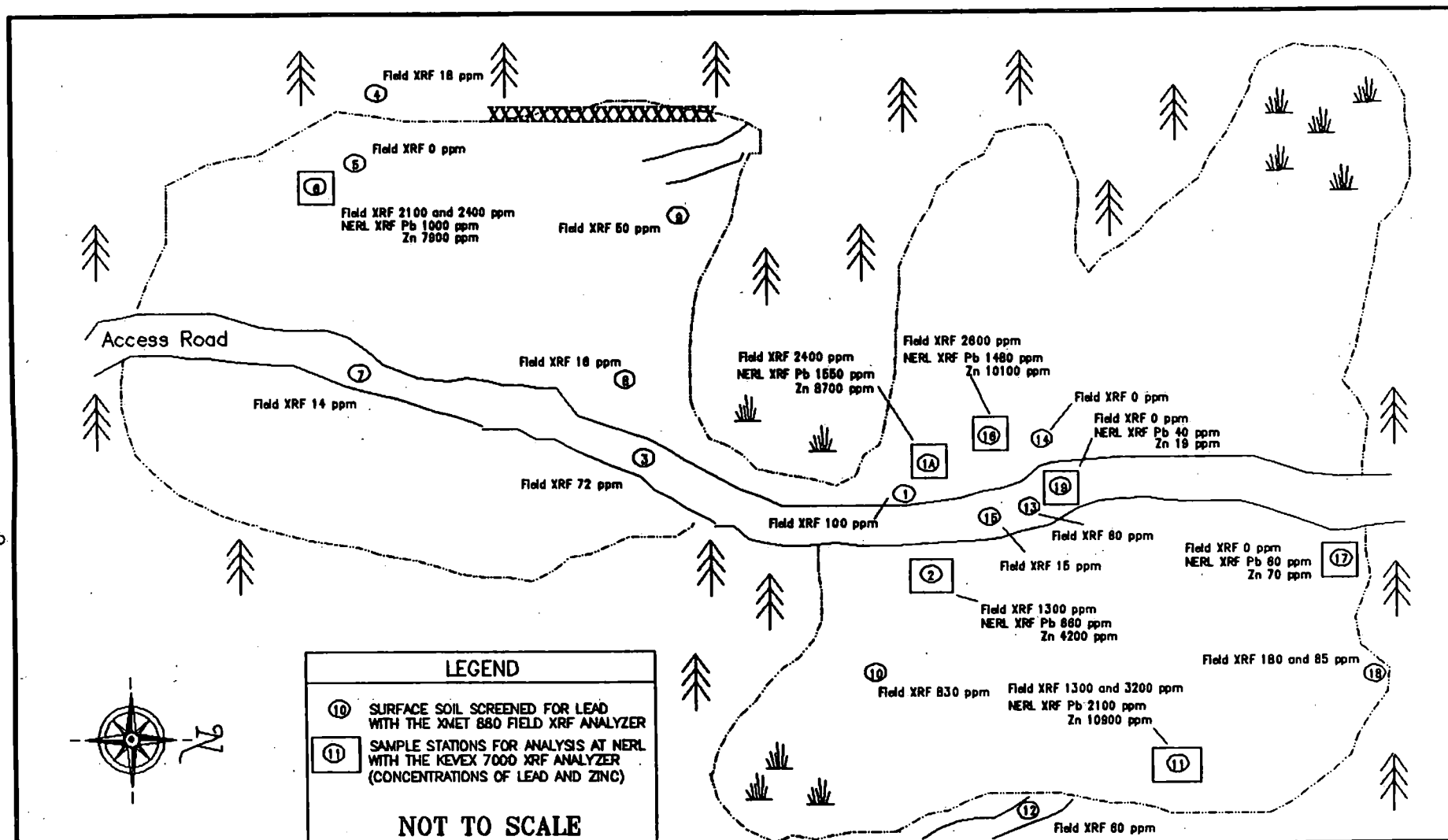
## **2.0 Data Use Objectives**

The objective of the sampling survey is to obtain sufficient analytical data from a representative number of samples which can be used to determine the extent of contamination for further removal actions at the site by the U.S. EPA, Region I, Emergency Planning and Response Branch (EPRB).

This sampling event is to determine the presence of contamination in surface water and drinking water, and to determine the extent of contamination in on-site soils for the purpose of site characterization and preliminary health risk assessment. The drinking water data will be evaluated against the Maximum Contamination Level (MCL) of 0.05 ppm for lead, and the surface water data will be evaluated against the EPA Ambient Water Quality Criteria (WQC) for Protection of Human Health levels of 0.05 ppm for lead and 5 ppm for zinc. The soil data will be evaluated against the EPA established cleanup levels of 500 - 1000 ppm for lead in soil at Superfund Sites (OSWER 1990) and U.S. EPA Environmental Response Team (ERT) has been contacted to assist the OSC in determining an appropriate action level for zinc at the site.

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**FIGURE 2**  
**Lead and Zinc Concentration Map**  
**HARCO PROPERTY**  
**Wilton, Connecticut**  
**EPA/TAT Sampling Survey - January 28, 1992**

**WESTON**

REGION I TECHNICAL ASSISTANCE TEAM

DRAWN  
**Paul F. Killian**

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### 3.0 Quality Assurance Objectives

The quality assurance (QA) objectives for the on-site screening activities will be QA1. These activities include the use of the following instrumentation/test equipment:

- MIE, Inc. Model PDM-3 Personal Aerosol Monitor (Miniram)
- Outokumpu XMET 880 X-Ray Fluorescence (XRF) Analyzer (XMET)
- Geonics LTD EM 31-D Non-Contacting Terrain Conductivity Meter (EM-31)
- G-856 Magnetometer
- HNU Systems, Inc. Photoionization Detector, with 10.2 eV probe (PID)

The quality assurance (QA) objectives for the on-site analysis activities will be QA2. These activities include the use of the following instrumentation:

- HNU Systems, Inc. SEFA-P X-Ray Fluorescence (XRF) Analyzer (SEFA-P)

The QA objectives are described in OSWER Directive 9360.4-01 (April 1990-Interim Final), *Quality Assurance/Quality Control Guidance for Removal Activities, Sampling QA/QC Plan and Data Validation Procedures* (OSWER 1990)

A private laboratory will be subcontracted by the Roy F. Weston, Inc., Technical Assistance Team (TAT) to perform the analyses of the Toxicity Characteristic Leachate Procedures (TCLP) soil samples. The QA level for the samples analyzed at the private laboratory will be a modified QA2. It is anticipated that QA1 and QA2 will satisfy most data quality requirements for the Removal Program. QA3 is expected to be used only in those cases where an error determination is needed to identify false negative or false positive values for critical decision level concentrations.

The confirmation soil samples, the drinking water samples, the surface water samples, and the breakout water samples will be analyzed at the U.S. EPA New England Regional Laboratory (NERL). Samples have been identified using an internal classification of low, mid, and high-level concentrations, which refers to the anticipated level of potential contamination. This classification system was instituted by EPRB and NERL in May 1991. The classification system and relative sampling protocols used to develop this sampling plan are described in a Roy F. Weston, Inc. draft inter-office memorandum dated March 1992, which has been submitted for comment to EPRB and NERL.

As identified in Sections 1.0 and 2.0, the objective of this sampling event applies to the following parameters:



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### 3.0 Quality Assurance Objectives (Cont.)

<u>QA Level</u>	<u>Parameters(Method)</u>	<u>Matrix</u>	<u>Intended Use Of Data</u>
QA1	Lead (XMET)	Soil	Field Screening
QA1	Zinc (XMET)	Soil	Field Screening
QA2	Lead (SEFA-P)	Soil	Site Characterization
QA2	Zinc (SEFA-P)	Soil	Site Characterization
QA2	Lead (ICP)	TCLP, Soil	Leachate/Disposal
QA2	Zinc (ICP)	TCLP, Soil	Leachate/Disposal
mid	Lead	Soil	Confirmation of SEFA-P
mid	Zinc	Soil	Confirmation of SEFA-P
low	Lead	Surface Water/ Breakout Water/ Drinking Water	Site Characterization/ Risk Assessment
low	zinc	Surface Water/ Breakout Water/ Drinking Water	Site Characterization Risk Assessment

See Section 6.0 for quality assurance requirements.

### 4.0 Approach and Sampling Methodologies

Table 1, Field Sampling Summary Table, is provided to detail the specific number of samples per parameter per matrix, the number of QA samples, the required preservatives, sample holding times, appropriate sample containers and sample volume. This table will be used to ensure that the appropriate laboratory space has been requested and to ensure that the appropriate sample containers and sample preservatives are taken to the site.

The sampling survey will be conducted on or about March 31, 1992. The samples will be screened in the field prior to sample collection, if practical, to determine the location and quantity of samples to be collected. Whenever practical, samples will be collected from the least contaminated locations first. The samples will be containerized, preserved, and analyzed in accordance to Table 1. U.S. EPA chain of custody procedures will be utilized for all sampling activities. Samples will be disposed of by the laboratory performing the analyses. All contaminated sampling equipment will be disposed of by NERL.

**TABLE 1**  
**FIELD SAMPLING SUMMARY**  
**HARCO PROPERTY SITE**  
**WILTON, CONNECTICUT**  
**MARCH 31, 1992 VISIT**

SAMPLE LOCATION	ANALYSIS	SAMPLE VOLUME (3)	CONTAINER	PRESERVATIVE	HOLDING TIMES	SUBTOTAL SAMPLES	QC EXTRAS		TOTAL FIELD SAMPLES
							RINSE BLANKS (2)	FIELD DUPLICATES	
Surface Soil	XMET XRF	NA	NA	NA	6 mos	~60	NA	3	~63
	SEFA-P XRF	20 gms	Ziplock	None	6 mos	~25	NA	1	~26
	Off-Site (1)	10 gms	4-oz glass	ice	6 mos	4	NA	1	5
Depth Soil	XMET XRF	NA	NA	NA	6 mos	~30	NA	2	~32
	SEFA-P XRF	20 gms	Ziplock	None	6 mos	~10	NA	1	~11
	Off-Site (1)	10 gms	4-oz glass	ice	6 mos	3	1	1	5
Surface Water	Off-Site (2)	1 liter	1-l plastic	HNO <sub>3</sub> , ice	6 mos	4	NA	0	4
Breakout Water	Off-Site (2)	1 liter	1-l plastic	HNO <sub>3</sub> , ice	6 mos	4	NA	1	5
Drinking Water	Off-Site (2)	1 liter	1-l plastic	HNO <sub>3</sub> , ice	6 mos	4	NA	0	4
TCLP Soil (4)	Off-Site (1)	250 gms	16-oz glass	ice	6 mos	3	NA	0	3

- NA - Not Applicable. No sample is collected.  
 (1) - Lead and zinc are to be analyzed by ICP.  
 (2) - Lead is to be analyzed by GFAA and zinc by ICP.  
 (3) - Total volume required after the samples have been split.  
 (4) - TCLP analysis for lead and zinc.

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#### 4.1 Sampling Equipment

The following equipment will be utilized to obtain samples from the respective media/matrix:

<u>Parameter/Matrix</u>	<u>Sampling Equipment</u>	<u>Fabrication</u>	<u>Dedicated</u>
Lead/Zinc in Soil (surface)	Spatula	plastic	Yes
Lead/Zinc in Soil (depth)	Thin-Walled Tube Sampler Bucket Auger	stainless steel	No
Lead/Zinc in Surface Water	Sample Bottle	polyethylene	Yes
Lead/Zinc in Drinking Water	Sample Bottle	polyethylene	Yes

Decontamination steps for non-dedicated sampling equipment:

- Physical removal
- Non-phosphate detergent wash
- 10% Nitric Acid Solution
- Distilled/deionized water rinse
- Air dry

#### 4.2 Sampling Design

The proposed sampling design is depicted on the attached Proposed Sample Location Map (Figure 3) and is based on the following rationale. Sample stations will be located on a systematic sampling grid (OSWER 1991) that sufficiently covers the designated sampling areas. The grid system will be set up using both north/south and east/west baselines that will be measured from permanent landmarks for future relocation. A survey instrument will be used to set the baselines and additional sample stations will be located using a fiberglass tape measure and a compass.

XRF instruments will be used during the initial field screening, and to determine the boundaries of the contaminated zones in each area. XRF analysis is based on recording the specific fluorescent X-rays given off by a sample after the sample has been exposed or excited by a radioactive source. Specific elements, in this case lead or zinc, will produce a characteristic fluorescent X-ray spectrum that can be semi-quantified by comparison to reference samples through an internal calibration model.

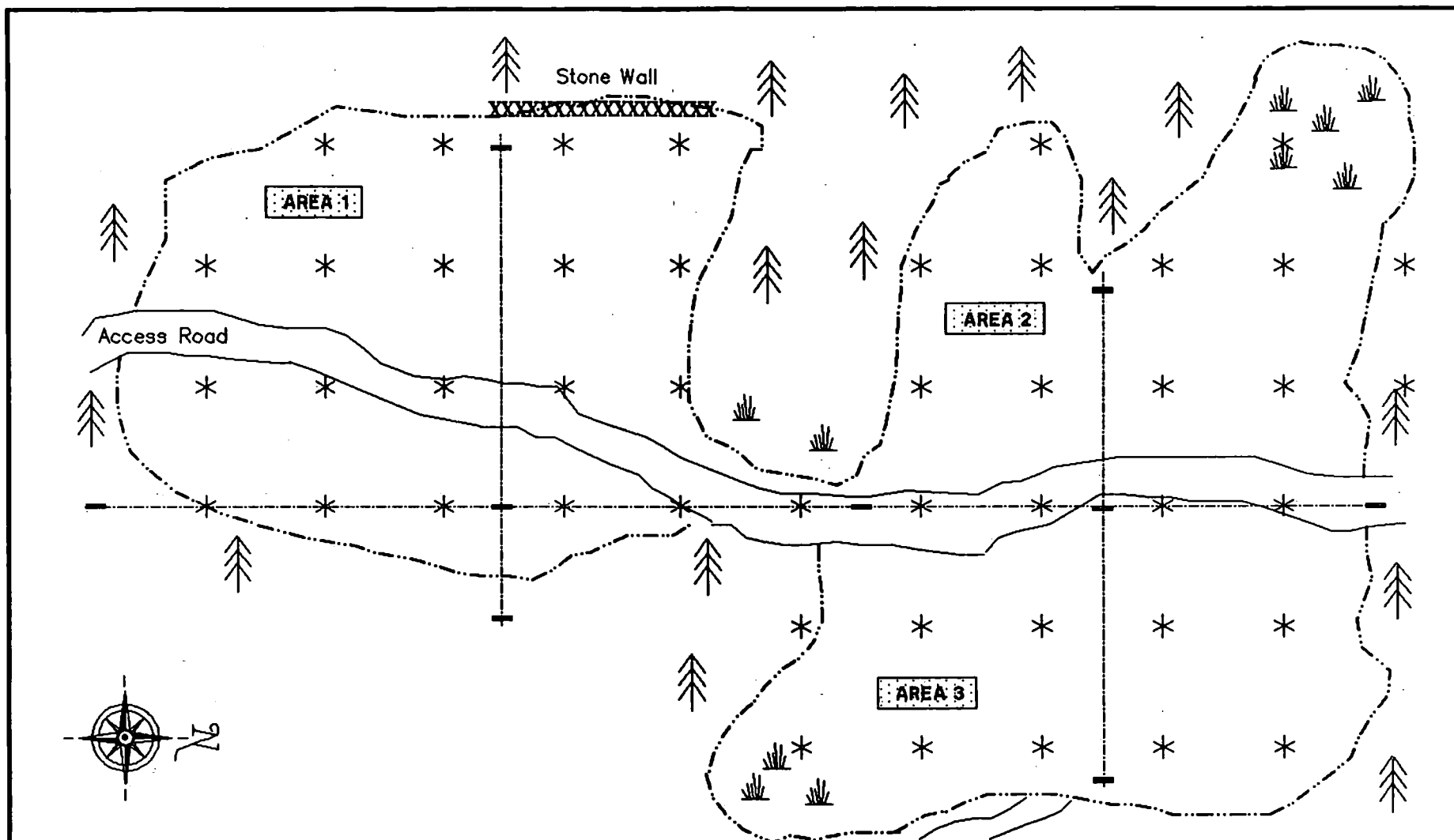


FIGURE 3

Proposed Sample Location Map  
HARCO PROPERTY  
Wilton, Connecticut  
March 1992 Sampling Survey

LEGEND

- Survey Control Points
  - \* Systematic Grid Sampling Points
  - Sampling Survey Baselines
  - - - Sampling Area Boundary (approximate)
  - AREA Sampling Area Designations
- NOT TO SCALE

**WESTON**

REGION I TECHNICAL ASSISTANCE TEAM

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#### **4.2 Sampling Design (Cont.)**

The Outokumpu XMET 880 portable XRF analyzer will be used to conduct the initial screening of the surface soil at each sample location. The XMET 880 will be calibrated in accordance with the XMET 880 Operations Manual prepared by the Region IV TAT (Weston TAT 1991), using samples of known concentration collected during the January 28, 1992 site visit. The concentration of these samples were determined using ICP analyses. The objective of the XMET screening is to define the area on site where the lead concentrations in surface soil are higher than the EPA established cleanup levels of 500-1000 ppm. The boundary defined by the XMET screening will then be sampled for more precise analysis with the HNU Systems, Inc. SEFA-P XRF, to further define the surface boundaries of the contaminated zones. Confirmation of the SEFA-P results will be determined by analysis using ICP Method 200.7 CLP-M.

Once the surface boundary to the contamination zone is determined, depth samples will be selected by random inside the contamination zone. Samples will be collected from various depths ranging from two to eight feet. They will be analyzed using both the XMET and the SEFA-P XRF instruments, and confirmation samples will be collected for ICP analysis. The ICP analysis will be performed by either NERL or a subcontracted laboratory.

Additionally, several samples will be collected from the surface water of streams that run off the site, from breakouts of groundwater at the site, and drinking water from houses that abut the site. These samples will be analyzed by either NERL or a subcontracted laboratory to determine lead and zinc concentrations. This information will aid in determining the health and environmental risks associated with the site.

Finally, three Toxic Characteristic Leachate Procedures (TCLP) samples will be collected from soil in the areas determined as contaminated based on XRF results. One TCLP sample will be a composite of the metal hydroxide sludge material, one will be collected from the location with the highest lead or zinc concentrations, and the last shall be determined by the OSC. These samples will be analyzed by a subcontracted laboratory to determine leachable lead and zinc concentrations. This information will aid in determining disposal options of the sludge material.

#### **4.3 Sample Documentation**

All sample documents must be completed legibly, in black ink. Any corrections or revisions must be made by lining through the incorrect entry and by initiating the error.

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#### **4.3 Sample Documentation (Cont.)**

##### **Field Log Book**

The field log book is essentially a descriptive notebook detailing site activities and observations so that an accurate account of field procedures can be reconstructed in the writer's absence. All entries should be dated and signed by the individuals making the entries, and should include (at a minimum) the following:

- Site name and project number.
- Name(s) of personnel on-site.
- Dates and times of all entries (military time preferred).
- Descriptions of all site activities, including site entry and exit times.
- Noteworthy events and discussions.
- Weather conditions.
- Site observations.
- Identification and description of samples and locations.
- Subcontractor information and names of on-site personnel.
- Date and time of sample collections, along with chain-of-custody information.
- Record of photographs.
- Site sketches.

##### **Sample Labels**

Sample labels must clearly identify the particular sample, and should include the following:

- Site name and number.
- Date/time sample was taken.
- Sample preservation.
- Initial of sampler(s).
- Analysis requested.
- Sample location/station.

Sample labels must be securely affixed to the sample container. Tie-on labels can be used if properly secured.

##### **Chain of Custody Record**

A chain of custody record must be maintained from the time the sample is taken to its final deposition. Every transfer of custody must be noted and signed for, and a copy of this record kept by each individual who has signed. When samples (or groups of samples) are not under direct control of the individual responsible for them, they must be stored in a locked container with a chain of custody seal.

#### **4.3 Sample Documentation (Cont.)**

The chain of custody record for samples should include (at minimum) the following:

- Project number (assigned by EPA NERL).
- Project Name, City and State. (\*\*)
- Name(s) and signature(s) of sampler(s).
- Sample station designation.
- Date and time of collection.
- Sample type (composite or grab)
- Station location
- Number and Volume of sample containers
- Analytical parameter and matrix of sample
- EPA sample identification number.
- Signature(s) off any individual(s) with control over samples.

(\*\*) NOTE: If the samples are being sent to a private subcontracted laboratory, then the Project Name, City and State information will not be written on the chain of custody record to ensure confidentiality. Instead, the project will be identified by a TDD number used for the subcontract.

#### **Chain of Custody Seals**

Chain of custody seals demonstrate that a sample container has not been tampered with, or opened. The individual in possession of the sample(s) must sign and date the seal, affixing it in such a manner that the container cannot be opened without breaking the seal. The chain of custody seal must be maintained from the time the sample is collected until the time the container is opened in preparation for analysis.

#### **4.4 Soil Sampling**

##### **4.4.1 Surface Soil Sampling**

Collection of surface soil samples will be accomplished with plastic spatulas. Surface debris will be removed, then a plastic spatula will be used to collect the sample. The sample is placed in either a plastic bag for on-site analysis, or a 8-oz glass jar for off site analysis. The samples will then be split following methods listed in section 4.7. After splitting the samples, the soil samples to be analyzed off site will be placed in 4-oz jars and preserved by placing them on ice.

#### 4.4.2 Depth Soil Sampling

Sampling at the shallow depths of zero to four feet will be accomplished with augers and thin-walled tube samplers. This system consists of an auger, a series of extensions, a "T" handle, and a thin-wall tube sampler. The auger is used to bore a hole to the desired sampling depth, and is then withdrawn. The auger tip is then replaced with a tube core sampler, lowered down the bore hole, and driven into the soil at the completion depth. The core is then withdrawn and the sample collected is then placed in a plastic bag for on-site analysis or in a 8-oz glass jar for off site analysis. The samples will then be split following methods listed in section 4.7. After splitting the samples, the soil samples to be analyzed off site will be placed in 4-oz jars and preserved by placing them on ice.

For greater depths of four to eight feet, several other types of augers will be available. These include: bucket type, posthole, and continuous flight (screw) augers. If either the bucket type or posthole auger is used then the sample will be collected directly from the auger at the desired depth and the sample collected is then placed in a plastic bag for on-site analysis or in a 8-oz glass jar for off site analysis. The samples will then be split following methods listed in section 4.7. After splitting the samples, the soil samples to be analyzed off site will be placed in 4-oz jars and preserved by placing them on ice. If a continuous flight auger is used, then the auger will bore a hole to the desired sampling depth, then removed and a tube core sampler is lowered down the bore hole, and driven into the soil at the completion depth. The core is then withdrawn and the sample collected is then placed in a plastic bag for on-site analysis or in a 8-oz glass jar for off site analysis. The samples will then be split following methods listed in section 4.7. After splitting the samples, the soil samples to be analyzed off site will be placed in 4-oz jars and preserved by placing them on ice. The choice of which auguring system to be used will be determined on-site based on the subsurface conditions.

#### **4.5 Surface Water Sampling**

The direct collection method will be followed in the collection of surface water samples from the streams and breakouts located on the site. The procedure will be to collect several liters of surface water by submerging an additional dedicated 1-liter plastic bottle into an undisturbed area of the stream, or directly under the breakout. The collected sample will then be homogenized by vigorous shaking, then alternating aliquots will be placed in two 1-liter plastic bottles. The procedure will be repeated until both plastic bottles each contain 1 liter of sample. After splitting, the sample, each plastic bottle will be preserved with nitric Acid ( $\text{NO}_3$ ) to a  $\text{pH} < 2$ , and stored on ice.

#### **4.6 Drinking Water Sampling**

Drinking water samples will be collected at a point in the water system prior to any treatment device. Prior to collecting samples, the drinking water taps will be purged for approximately ten minutes. Then a 1-liter plastic bottle will be filled from the purged tap. The sample bottle will then be preserved with nitric acid ( $\text{NO}_3$ ) to a  $\text{pH} < 2$ , and stored on ice.



#### **4.7 Sample Preparation and On-Site Analysis**

##### **4.7.1 Split Sampling of Soils for On-site Analysis**

The soil sample will be removed from the plastic bag and placed onto a clean plastic weight boat, which will then be placed in the microwave oven for four minutes to dry the sample. The stones will be removed, then the dry sample will then be crushed with a non-metallic mortar and pestle to homogenize the sample. The homogenized sample will then be split into two samples. One-half of the sample will be placed in a 40-ml VOA vile for the Potentially Responsible Party (PRP), and the other half of the sample will be placed in a sample cup and analyzed at the site using the SEFA-P XRF.

##### **4.7.2 Split Sampling of Soils for Off-site Analysis**

The following procedures will be followed in splitting these soil samples:

- The sample is poured onto a clean surface forming a cone.
- The cone is flattened, and divided into quarters.
- The opposite corners are mixed, then the cone is reformed.
- Repeat the above procedures five times. The sample is now homogeneous.
- Alternate placing a scoop of homogeneous sample into two 4-oz jars, except for TCLP samples which will be placed in 16-oz jars. One jar is for the PRP and the other is for the off site analysis.

##### **4.7.3 Split Sampling of Water Samples**

This procedure was detailed in sections 4.5 and 4.6.

#### **4.8 Sample Handling and Shipment**

Each of the sample bottles will be sealed and labeled according to the following protocol. Caps will be secured with custody seals. Bottle labels will contain all required information including sample number, time and date of collection, analysis requested, and preservative used. Sealed bottles will be placed into individual resealable plastic bags, then placed into large metal or plastic coolers, and padded with an absorbent material such as vermiculite.

Additional procedures are required for shipping hazardous waste samples including use of metal paint cans and clips, and the use of proper shipping labels. Detailed procedures can be found in the Roy F. Weston, Inc. document entitled *A Quick Guide to Shipping Hazardous Material, Issued 1988* (Weston, 1988).

All sample documents will be affixed to the underside of each cooler lid. The lid will be sealed and affixed on at least two sides with EPA custody seals so that any sign of tampering is easily visible.

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#### 4.9 Schedule of Activities

The proposed schedule of work is as follows:

<u>Activity</u>	<u>Start Date</u>	<u>End Date</u>
Site Investigation Planning	01/02/92	03/30/92
Mobilization to the Site	03/27/92	03/30/92
Site Activities	03/30/92	04/01/92
Site Visit Memorandum	04/02/92	04/10/92
Draft Report Preparation	04/02/92	05/06/92
Final Report Preparation	05/06/92	05/15/92

#### 5.0 Project Organization and Responsibilities

The EPA On-Scene Coordinator, Paul Groulx, will provide overall direction to Roy F. Weston, Inc. staff concerning project sampling needs, objectives and schedule.

The Roy F. Weston, Inc. Task Leader, Paul Killian, is the primary point of contact with the EPA On-Scene Coordinator. The Task Leader is responsible for the development and completion of the sampling QA/QC plan, project team organization, and supervision of all project tasks, including reporting and deliverables.

The following personnel will be conducting on-site activities for this project:

<u>Personnel</u>	<u>Responsibility</u>
Paul Groulx	EPA On-Scene Coordinator
Royal Nadeau	EPA ERT
Timothy Jones	XMET Operation/Sampling
Paul Killian	TAT Task Leader/SEFA-P Operator
Zoe Horton	Sampling and Documentation

The following laboratories will be providing the following analyses:

<u>Lab Name/Location</u>	<u>Lab Type</u>	<u>Parameters</u>
EPA NERL 60 Westview Street Lexington, MA 02173	Environmental Services Division	Lead (ICP, GFAA) Zinc (ICP)
Private Laboratory	To Be Determined	TCLP (Lead, Zinc)

## **6.0 Quality Assurance Requirements**

The on-site screening activities with the XMET XRF will employ the following QA1 objectives: sample documentation; instrument calibration/performance check; and the determination of a detection limit, if appropriate. A log of all instrument readings of each sample location will be prepared.

The on-site analyses with the SEFA-P XRF will employ the following QA2 objectives: sample documentation, instrument calibration/performance check; periodic field duplicate samples, and the determination of a detection limit, if appropriate. A chain-of-custody record, sample cards and sample documentation will be prepared.

The laboratory analyses performed by the subcontracted laboratory, and will employ the following QA2 objectives: sample documentation, instrument calibration/performance check, preparation blank, matrix spike, laboratory duplicate, and the determination of a detection limit. The laboratory analyses performed by NERL will employ mid-level for the soil samples and low-level for the water samples. The samples designated as mid-level will be analyzed to determine definitive identification and quantitation of contaminants. Mid-level QA protocols will include a laboratory blank, matrix spike, and multiple standards. Samples designated as low-level are usually drinking water samples or samples collected for enforcement purposes. Low-level QA protocols will include a laboratory blank, matrix spike and matrix spike duplicate, and multiple standards.

A QA/QC Analysis and Objectives Summary Table (Table 2), is provided to summarize the analytical method, compound, detection limit, duplicates, spikes, Laboratory Control Sample (LCS), and QA objectives for each type of sample collected. This table describes the appropriate data quality indicators based on the QA/QC objective determined in Section 3.0 which will be used during the evaluation of the laboratory data package.

## **7.0 Deliverables**

A report documenting all project activities will be generated by TAT. Based on visual observations and exact sampling locations selected in the field, a site diagram and sample location map will be prepared and included in the final sampling QA/QC plan. Any modifications to the practices in the original sampling QA/QC plan will be documented in this report when it is finalized in order to reflect what was actually done in the field.

## **8.0 Data Validation**

A data quality review of the sample analyses generated by the private subcontracted laboratory will be conducted by TAT under an assigned TDD. The data will be evaluated according to OSWER Directive 9360.4-01 (April 1990 - Interim Final). The data quality review of sample analyses generated by NERL will be conducted by EPA personnel.

QA1 objectives will be evaluated for calibration and detection limits.

TABLE 2  
QA/QC ANALYSIS AND OBJECTIVES SUMMARY  
HARCO PROPERTY SITE  
WILTON, CONNECTICUT  
MARCH 31, 1992 VISIT

SAMPLE	ANALYTICAL METHOD	COMPOUND	DETECTION LIMIT	QA/QC			QA OBJECTIVE (2)
				DUPLICATES	SPIKES	LCS (1)	
Surface Soil	XMET XRF	Lead	300 ppm	1:20	NA	NA	QA1
	XMET XRF	Zinc	100 ppm	1:20	NA	NA	QA1
	SEFA-P XRF	Lead	100 ppm	1:20	NA	NA	QA2
	SEFA-P XRF	Zinc	50 ppm	1:20	NA	NA	QA2
	ICP	Lead	1 ppm	1:20	1:20	1:20	Mid
	ICP	Zinc	1 ppm	1:20	1:20	1:20	Mid
Depth Soil	XMET XRF	Lead	300 ppm	1:10	NA	1:20	QA2
	XMET XRF	Zinc	100 ppm	1:10	NA	1:20	QA2
	SEFA-P XRF	Lead	100 ppm	1:10	NA	1:20	QA2
	SEFA-P XRF	Zinc	50 ppm	1:10	NA	1:20	QA2
	ICP	Lead	1 ppm	1:20	1:20	1:20	Mid
	ICP	Zinc	1 ppm	1:20	1:20	1:20	Mid
Surface Water	GFAA	Lead	0.005 ppm	1:20	1:20	1:20	Low
	ICP	Zinc	0.020 ppm	1:20	1:20	1:20	Low
Breakout Water	GFAA	Lead	0.005 ppm	1:20	1:20	1:20	Low
	ICP	Zinc	0.020 ppm	1:20	1:20	1:20	Low
Drinking Water	GFAA	Lead	0.005 ppm	1:20	1:20	1:20	Low
	ICP	Zinc	0.020 ppm	1:20	1:20	1:20	Low
TCLP	ICP	Lead	1 ppm	1:20	1:20	1:20	QA2
	ICP	Zinc	1 ppm	1:20	1:20	1:20	QA2

(1) - LCS = Laboratory Control Sample

(2) - QA Objectives of Mid and Low are for samples analyzed at NERL

**"DRAFT"**

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